

Claims

1. Recoil plate for an axial piston machine, wherein the recoil plate (24) is disk-shaped and has a central through-opening (32), which is encircled by a collar (39), which extends with an axial direction component from a first surface (34, 34') of the recoil plate (24), and wherein the recoil plate (24) has a plurality of sliding-shoe-receiving openings (36),
characterized in
that the sliding-shoe-receiving openings (36) are encircled in each case by a guide collar (38), which extends with an axial direction component from a second surface (40) of the recoil plate (24) in the opposite direction to the collar (39) of the central through-opening (32).
2. Recoil plate according to claim 1,
characterized in
that at least a portion of an inner face (43) of the guide collar (38) that in each case delimits the sliding-shoe-receiving opening (36) has the shape of a cylinder lateral surface.
3. Recoil plate according to claim 2,
characterized in
that the height of the cylinder lateral surface is a substantial fraction of an overall height (H) of the sliding-shoe-receiving opening (36).
4. Recoil plate according to one of claims 1 to 3,
characterized in
that the first surface (34, 34') of the recoil plate

(24) in a region, which surrounds the collar (39) in radial direction at the outside, is a flat surface.

- 5 5. Recoil plate according to one of claims 1 to 4,
characterized in
that the sliding-shoe-receiving openings (36) are completely encircled by a radially outer region (52) of the recoil plate (24).
- 10 6. Recoil plate according to claim 5,
characterized in
that the radially outer region (52) of the recoil plate (24) has a circular external contour (50).
- 15 7. Recoil plate according to one of claims 1 to 6,
characterized in
that a portion of an inner face (41) of the collar (39) that delimits the central through-opening (32) in radial direction has a spherical shape.
- 20 8. Recoil plate according to one of claims 1 to 7,
characterized in
that at least one portion (41') of the inner face (41) of the collar that delimits the central through-opening
25 (32) is hardened.
- 30 9. Recoil plate according to one of claims 1 to 8,
characterized in
that the collar (39) and the guide collars (38) are
formed by shaping a flat basic body.

10. Recoil plate according to claim 9,
characterized in
that the basic body is a circular disk.

5 11. Recoil plate according to one of claims 1 to 10,
characterized in
that the collar (39) and the oppositely directed guide
collars (38) are formed in a punching/embossing
process.

10

12. Axial piston machine comprising a cylinder drum (4),
which rotates relative to a running surface (28), which
is arranged inclined relative thereto and on which
sliding shoes (12) are supported by a sliding face (25)
15 in order to generate a reciprocating motion of pistons
(10), which are axially displaceable in cylinder bores
(9) of the cylinder drum (4), wherein the sliding shoes
(12) during an induction stroke are held by means of a
recoil plate (24) in abutment on the running face (28)
20 and the recoil plate (24) for receiving the sliding
shoes (12) has sliding-shoe-receiving openings (36), in
each case a retaining face (33) of the sliding shoe
(12) that is oriented in the opposite direction to the
sliding face (25) of the sliding shoes (12) abuts on a
25 first surface (34) of the recoil plate (24) and the
recoil plate (24) is supported by an inner face (41) of
a collar (39) that encircles a central through-opening
(32) against a thrust bearing (29) and the collar (39)
extends with an axial direction component from the
30 first surface (34),

characterized in

that the sliding-shoe-receiving openings (36) are
encircled in each case by a guide collar (38), which

extends with an axial direction component from a second surface (40) of the recoil plate (24) in the opposite direction to the collar (39) of the central through-opening (32).

5

13. Axial piston machine according to claim 12,
characterized in

that at least a portion of an inner face (43) of the guide collar (38) that in each case delimits the
10 sliding-shoe-receiving opening (36) has the shape of a cylinder lateral surface.

14. Axial piston machine according to claim 13,
characterized in

15 that the height of the cylinder lateral surface is a substantial fraction of an overall height (H) of the sliding-shoe-receiving opening (36).

15. Axial piston machine according to one of claims 12 to
20 14,

characterized in

that the first surface (34, 34') of the recoil plate (24) in a region, which surrounds the collar (39) in radial direction at the outside, is a flat surface
25 (34').

16. Axial piston machine according to one of claims 12 to
15,

characterized in

30 that the sliding-shoe-receiving openings (36) are completely encircled by a radially outer region (52) of the recoil plate (24).

17. Axial piston machine according to claim 16,
characterized in
that the radially outer region (52) of the recoil plate
(24) has a circular external contour (50).
- 5 18. Axial piston machine according to one of claims 12 to
17,
characterized in
that a portion of an inner face (41) of the collar (39)
10 that delimits the central through-opening (32) in
radial direction has a spherical shape.
19. Axial piston machine according to one of claims 12 to
18,
15 **characterized in**
that at least a portion (41') of the inner face (41) of
the collar (39) that delimits the central through-
opening (32) is hardened.
- 20 20. Axial piston machine according to one of claims 12 to
19,
characterized in
that the collar (39) and the guide collars (38) are
formed by shaping a flat basic body.
- 25 21. Axial piston machine according to claim 20,
characterized in
that the basic body is a circular disk.
- 30 22. Axial piston machine according to one of claims 12 to
21,
characterized in
that the collar (39) and the oppositely directed guide

collars (38) are formed in a punching/embossing process.

23. Method of manufacturing a recoil plate (24) for an
5 axial piston machine (1) comprising the following
method steps:
- manufacture a disk-shaped basic body;
 - punch sliding-shoe-receiving openings (36);
 - punch a central through-opening (32);
 - 10 - shape an inner edge of the disk-shaped basic body
that delimits the central through-opening (32) into a
collar (39) such that the collar (39) extends with an
axial direction component from a first surface (34) of
the recoil plate (24); and
 - 15 - shape an edge of the disk-shaped basic body that in
each case delimits the sliding-shoe-receiving openings
(36) into in each case a guide collar (38) such that
the guide collars (38) extend with an axial direction
component from a second surface (40) of the recoil
20 plate (24).

24. Method according to claim 23,
characterized in
that at least one portion (41') of an inner face (41)
25 of the collar (39) is hardened.

25. Method according to claim 24,
characterized in
that the portion (41') of the inner face (41) is
30 hardened with the aid of a laser.

26. Method according to one of claims 23 to 25,
characterized in

that the edges of the sliding-shoe-receiving openings (36) and the inner edge of the central through-opening (32) are formed into the guide collars (38) and the collar (39) in a common embossing process.

5

27. Method according to claim 26,

characterized in

that punching-out of the central through-opening (32) and of the sliding-shoe-receiving openings (36) and forming of the edges is carried out in a single operation in a punching/embossing process.

10

28. Method according to one of claims 23 to 27,

characterized in

that the first surface (34) of the disk-shaped basic body remote from the guide collars (38) is, after forming, machined in respect of its flatness and surface quality.

15